IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Bruce Schofield	Examiner:	John Pauls
Serial No.:	10/805,993	Art Unit:	3686
Conf. No.:	1210		
Filed:	March 22, 2004	Attorney Docket No.:	909430-US-NP
Title:	METHOD AND APPARATUS FOR PROVIDING NETWORK BASED LOAD BALANCING OF MEDICAL IMAGE DATA		

CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this document, along with any other papers referred to as being attached or enclosed, is being filed electronically on April 13, 2010.

/John C. Gorecki/
John C. Gorecki, Reg. No. 38,471

M .S. Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Sir:

Applicants request review of the final rejection in the above-identified application for the reasons set forth below. This request is being filed with a notice of appeal. No amendments are being filed with this request. The arguments set forth in the Response filed February 26, 2010, are incorporated herein by reference.

Rejection under 35 USC 103

Independent claims 37 and 45 were rejected under 35 USC 103 as unpatentable over Rothschild (U.S. Patent Application Publication No. 2002/0016718) in view of Primak (U.S. Patent No. 6,389,448), and Martin (U.S. Patent No. 6,263,368).

Summary

Independent claim 37 relates to a method for performing network based load balancing of medical image data among a plurality of image archive resources. Independent claim 45 relates to an apparatus for performing network based load balancing of medical image data among a plurality of image archive resources. Both claims recite that the level of complexity of the task

to be performed should be used during the load balancing process.[1] [2] However, none of the cited references teach or suggest that the level of complexity of the task to be performed should be used in load balancing of medical images. Accordingly, the Examiner erred in rejecting independent claims 37 and 45 and the rejection under 35 USC 103 should be reversed.

Rothschild

Rothschild teaches a medical image management system that may be implemented by an Application Service Provider to provide network based delivery and storage of medical images. The medical image management system allows users to have access to the medical images securely over the network and provides special clinical and visualization applications centrally for the remote users. (Rothschild at paragraphs 136-140). Rothschild does not teach or suggest load-balancing images to image archives based on the complexity of the task required to be implemented on the medical images. The Examiner does not appear to contend that Rothschild teaches or suggests this feature either. (See Office Action at page 3-4).

Primak

Fig. 2b of Primak shows a router 30 connecting three servers 10(a), 10(b) and 10(c) to the Internet. Each server has a Load Balancing module 12. A client passes a connection request (SYN packet) to the router which multicasts the connection request to all of the servers (Primak at Col. 3, lines 46-48: "After receiving the SYN packet from the client computer 60, the router 30 multicasts the SYN packet to all of the servers 10(a)-(c).").

In Primak, the load balancing module 12 of each server evaluates whether its associated server will handle the connection request by (1) calculating a pseudo-random number; and (2) determining the relative availability of each server. (Primak at Col. 3, lines 49-54: "The evaluation process involves calculating a pseudo-random number for each SYN packet and

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[1] In claim 37, the method includes the steps of "determining, by the network service, a level of complexity of the task to be performed from the instructions associated with the task" and "selecting … one of the plurality of image archive resources to be used to perform the task … using, as a selection function, the available capacity of each of the plurality of image archive resources and the level of complexity of the task to be performed."

[2] In claim 45, the apparatus includes a network service configured to "determine a level of complexity of the task to be performed…" and "select one of the plurality of image archive resources to be used to perform the task … using, as a selection function, the available capacity of each of the plurality of image archive resources and the level of complexity of the task to be performed."

determining the relative availability of each server.") The load balancing module either passes the SYN packet (connection request) onto the server's stack or discards it based on its evaluation of the SYN packet. (Primak at Col. 3, lines 54-57). Each server generates the same pseudorandom number[3] and has full information about each of the other servers' availability[4] and, hence, each of the servers will make the same decision to implement distributed load balancing.

Primak does not teach or suggest that the complexity of the SYN packet or the task associated with the SYN packet should be used in making a load balancing decision when deciding which of the servers will process the SYN packet. Paragraph 22 of the instant specification specifies that "the level of complexity of a task will be based on the amount of resources that are required to execute the task, such as processor time or memory, or the complexity may be a function of the time that is required to execute the command." These features look at the new task that is to be allocated, not the existing tasks that are already being processed by the various processors. Since the "task" in Primak is the SYN packet associated with establishment of a new connection, to find a corollary between paragraph 22 and Primak the Examiner would need to show that Primak looks at the complexity of the SYN packet. Primak does not do this.

In the Response to arguments section, (Final Office Action at page 12, lines 14-18), the Examiner asserted that Primak teaches assessing the complexity of a task to be performed in connection with load balancing, citing Primak at Col. 4, lines 30-37 and Fig. 2b. Specifically, the Examiner stated that Primak "discloses monitoring CPU capacity, CPU load, number of tasks being performed and the number of connections" which the Examiner stated "has the same meaning as complexity in the specification of the present application as shown in paragraph 22". (Office Action at page 12, lines 16-18). As noted above, however, each of these factors looks at how the servers are operating, nothing in this list refers to the new SYN packet that is to be

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[3] See Primak at Col. 3, line 57 to Col. 4, line 4: (explaining how the pseudo-random number is generated); see also Primak at Col. 4, lines 4-6: (explaining that each Load Balancing module generates an identical random number).

[4] See Primak at Col. 4, line 8, "The relative availability of a server is a function of its overall capacity and current load."; see also Primak at Col. 4, lines 30-37: (teaching that an agent 14 on each server will periodically transmit the availability of the server to the other servers so that each of the load balancing agents knows how busy each of the other servers is).

assigned to one of the servers. Hence, the Examine erred by equating monitoring server operation with evaluating the complexity of the task to be load balanced.

Martin

Martin teaches that conventional processor load balancing may break down where there is a large amount of data to be transmitted from a server. In this instance, the availability of bandwidth on the network, rather than processor bandwidth, may cause a bottleneck (Martin at col. 2, lines 61-67). Thus, Martin suggest that network server link loading be monitored and used as the basis of performing load balancing between servers (Martin at Col. 3, 36-42).

The Examiner cited Martin at Col. 1, lines 41-44 Col. 3, lines 42-48, and Col. 5, lines 14-28 as teaching network load balancing based on the complexity of the task to be performed. In Col. 1, lines 41-44, Martin states that tasks should be distributed equally among the individual server computers to balance the overall loading of the server site to obtain optimum performance. At Col 3, lines 42-48, Martin states that a message traffic monitor is configured to monitor parameters representative of message traffic to and from the servers on the network server links. This reinforces the position outlined above, which is that Martin is looking at the volume of traffic on the network to server links in connection with load balancing. This does not mean that Martin is looking at the complexity of the task to be performed but rather means that he is looking at the amount of traffic on the links connecting the servers to the network. At Col. 5, lines 14-28, Martin states that client requests are dispatched to servers by looking at "parameters representative of network loading on the server network links. (See Col. 5, lines 24-26).

Thus, Martin teaches that network to server "link loading" may be monitored and used as the basis of performing load balancing between servers (Martin at Col. 3, 36-42). Martin does not, however, teach or suggest that the load balancer should look at the complexity of the task to be allocated when selecting a server.

Conclusion

In the response to arguments section, the Examiner stated in two places (Page 12, lines 8-12 and Page 12, lines 18-20) that "one cannot show non-obviousness by attacking references individually where the rejections are based on combinations of references." Applicants are not attacking references individually, but rather are asserting that none of the applied references teach or suggest a particular aspect of the claims. Specifically, none of the cited references teach

or suggest that the level of complexity of the task to be performed should be used in load balancing of medical images. Hence, if none of the references teach this claimed feature, the combination necessarily also does not teach or suggest the claimed feature. Accordingly, the Examiner committed legal error in rejecting the claims of this application and the rejection under 35 USC 103 should be reversed. The dependent claims are likewise patentable for at least these same reasons.

If any fees are due in connection with this filing, the Commissioner is hereby authorized to charge payment of the fees associated with this communication or credit any overpayment to Deposit Account No. 501602 (Ref: 909430-US-NP).

Respectfully Submitted

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